

**Focus Report**  
**New Chemicals Program**  
PMN Number: **L-13-0177**

Focus Date: 03/11/2013 12:00:00 AM Report Status: Completed  
Consolidated Set:  
Focus Chair: Kristan Markey Contractor: Bryan Amagai

**I. Notice Information**

Submitter: Johnson Matthey Inc. CAS Number: 3278-88-4  
Chemical Name: Benzene, 1,2,4-tribromo-5-methyl-  
Use: Tracer chemical to measure flow in deep oil-bearing strata or hydrocarbon leak measurements. P2  
Claim: The LVE material is intended to replace radionuclide tracers. [REDACTED]

Other Uses: [REDACTED]

PV-Max: 1,000 Kg/yr Binding Option: Yes  
Manufacture: Import: X

**II. SAT Results**

(1) **Health Rating:** 1-2 **Eco Rating:** 3 **Comments:** ;

**Occupational:** 2-3A **Non-Occupational:** 2 **Environmental:** 2

(1) **PBT:** 2 2 1 **Comments:**  
Awaiting Human  
Health Entry  
Awaiting Human  
Health Entry  
Awaiting Human  
Health Entry

**III. OTHER FACTORS**

**Categories:**

Health Chemical Category: Ecotox SAR and TSCA New Chemical Category: Neutral Organics; Neutral Organics

**Related Cases/Regulatory History:**

Health related Cases:  
Ecotox Related Cases:  
Regulatory History:

[REDACTED]

**MSDS/Label Information:**

MSDS: Yes Label: No  
General Equipment: impervious gloves / safety glasses / protective work clothing / properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.  
Respirator: use NIOSH certified combination gas / vapor respirator with APF of 10  
Health Effects: causes skin irritation / causes serious eye irritation / may cause respiratory irritation  
TLV/PEL (PMN or raw material): - None Established  
LVEPPE: Goggles, Impervious Gloves, Tyvek Suit. Use NIOSH certified combination gas / vapor respirator with APF of 10.

**Exposure Based Information:**

Exposure Based Review: N  
Exposure Based Review (Eco): N  
Exposure Based Review  
(Non Occupational):

Exposure Based Review (Health): N  
Exposure Based (Occupational): No  
Exposure Based (Environmental):

**IV. Summary of SAT Assessment****Fate:**

**Fate Summary:** L-13-0177  
FATE:  
Solid with MP = 112-115 C (M)  
log Kow = 5.21 (E)  
S = 0.237 mg/L at 25 C (E)  
VP = 7.8E-4 torr at 25 C (E)  
BP = 280 C (E)  
H = 4.15E-4 (E)  
log Koc = 3.00 (E)  
log Fish BCF = 3.11 (E)  
log Fish BAF = 3.21 (E)  
POTW removal (%) = 84 via sorption  
Time for complete ultimate aerobic biodeg = mo  
Sorption to soils/sediments = strong - v.strong  
Volatilization half-life from a standard river = 4 hrs  
Volatilization half-life from a standard lake = 8 da  
Atmospheric Oxidation Half-life = 310 hr via OH radical  
PBT Potential: P2B2  
\*CEB FATE: Migration to ground water = negl - slow

**Health:**

**Health Summary:** Absorption is nil through the skin as the neat material, poor through the skin when in solution, and poor through the lungs and GI tract based on physical/chemical properties. There is concern for neurotoxicity, and liver effects for the aromatic bromines and uncertain concern for developmental toxicity based on small benzene compounds. Low moderate concern.

**Ecotox:**

**Ecotox Values:**  
Fish 96-h LC50: \*(P)  
Daphnid 48-h LC50: \*(P)  
Green algal 96-h EC50: \*(P)  
Fish Chronic Value: 0.049(P)  
Daphnid ChV: 0.06(P)  
Algal ChV: 0.347 or \*(P)

**Ecotox values comments:** Predictions are based on SARs for neutral organic chemicals; MW 329; log Kow = 5.2 (EPI); S = 0.024 mg/L at 25 C (P); pH7; effective concentrations based on 100% active ingredients and mean measured concentrations; hardness <180.0 mg/L as CaCO<sub>3</sub>; and TOC <2.0 mg/L;

**Ecotox Factors:**

Assessment Factor: 10  
Concern Concentration:  
- Acute Value  
Concern Concentration: 5  
- Chronic Value

## V. Summary of Exposures/Releases

Engineering Summary: L-13-0177

Exposures/Releases	Release	Release	Release
<b>Scenario</b>	<b>Processing: Tracer Chemical Formulation</b>	<b>Processing: Tracer Chemical Formulation</b>	<b>Processing: Tracer Chemical Formulation</b>
<b>Sites</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Media</b>	<b>Water or Air or Incineration or Landfill</b>	<b>Water or Incineration or Landfill</b>	<b>Water or Incineration or Landfill</b>
Descriptor A	Output 2	Output 2	Conservative
Quantity A (kg/site/day)	3.1E-1	6.2E-1	6.2E-1
Frequency A (day/year)	16	16	16
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	Unloading Solid Raw Material from Transport Containers	Cleaning Solid/ Powder Residuals from Containers Used to Transport the Raw Material	Equipment Cleaning Losses of Liquids from a Single, Small Vessel
Workers			
Exposure Type			

Engineering Summary: Exposures/Releases	Release	Release	Exposure
<b>Scenario</b>	<b>Use: Injection of Tracer Chemical into Oil-Bearing Strata</b>	<b>Use: Injection of Tracer Chemical into Oil-Bearing Strata</b>	<b>Processing: Tracer Chemical Formulation</b>
<b>Sites</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Media</b>	<b>Incineration</b>	<b>Water or Incineration or Landfill</b>	<b>Dermal</b>
Descriptor A	Output 2	High End	High End
Quantity A (kg/site/day)	2.0E+1	1.2E-1	3.0E+3
Frequency A (day/year)	50	50	16
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	Oil Production	Cleaning Liquid Residuals from 5 L Containers Used to Transport the Raw Material	Unloading Solid Raw Material from Transport Containers
Workers			3
Exposure Type			Solid

## **V. Summary of Exposures/Releases**

Engineering Summary: L-13-0177

<b>Exposures/Releases</b>	<b>Exposure</b>	<b>Exposure</b>	<b>Exposure</b>
<b>Scenario</b>	<b>Processing: Tracer Chemical Formulation</b>	<b>Processing: Tracer Chemical Formulation</b>	<b>Use: Injection of Tracer Chemical into Oil-Bearing Strata</b>
<b>Sites</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Media</b>	<b>Inhalation</b>	<b>Dermal</b>	<b>Dermal</b>
Descriptor A	Upper Bound	High End	High End
Quantity A (kg/site/day)	1.5E+2	7.1E+2	7.1E+2
Frequency A (day/year)	16	16	50
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	Unloading Solid Raw Material from Transport Containers	Loading Liquid Product into 5 L Containers	Unloading Liquid Raw Material from 5 L Containers
Workers			
Exposure Type	Particulate	Liquid	Liquid

## **VI. Focus Decision and Rationale**

### **Regulatory Actions**

Regulatory Decision: LVE Conditional Grant

Decision Date: 03/11/2013

Type of Decision:

Rationale:

L-13-0177 was given a conditional grant based on binding to the production volume, binding to the uses defined in the PMN, and amending the MSDS. Absorption is nil through the skin as the neat material, poor through the skin when in solution, and poor through the lungs and GI tract based on physical/chemical properties. Human health hazard concerns were low-moderate for neurotoxicity, and liver effects for the aromatic bromines and uncertain concern for developmental toxicity based on small benzene compounds. Workers are expected to be exposed via inhalation and dermal routes. The submitter must amend the MSDS to include the use of a NIOSH-certified particulate respirator with an APF of 10 to mitigate potential risks. Ecotoxicity hazard concerns were high based on EcoSAR predictions for neutral organics. Potential risks to the environment were low due to fewer than 20 days of exceedance of the COC during the release period. The submitter bound this LVE to 1,000 kg/yr, and EPA assessed it at this volume..

COC: Chronic – 5 ppb, Acute – No effects at saturation

#### Summary of Exposures and Releases

##### Proc

1 site, 16 days/ year, 3 workers

Inhalation (Particulate): 1.5E+2 mg/day

Dermal: 3.0E+3 mg/day (98% Liquid)

Dermal: 7.1E+2 mg/day (40% Liquid)

Releases to Water: 3.1E-1 kg/site-day over 16 days/yr

Or Air or Incineration or Landfill

Releases to Water: 6.2E-1 kg/site-day over 16 days/yr

Or Incineration or Landfill

Fate Releases to Landfill: LADD: 5.16E-06 mg/kg/day

##### Fate Releases to Air:

Stack Air: LADD: 6.73E-06 mg/kg/day ADR: 1.91E-03 mg/kg/day

Fugitive Air: LADD: 1.10E-05 mg/kg/day ADR: 7.79E-03 mg/kg/day

##### Fate Releases to Water (Removal Rate 84%):

SWC: 31.96 ppb

DW: LADD: 2.14E-06 mg/kg/day; ADR: 1.56E-03 mg/kg/day

FI: LADD: 1.17E-05 mg/kg/day; ADR: 1.43E-02 mg/kg/day

##### Use

1 site, 50 days/year, 3 workers

Inhalation: Negligible (VP < 0.001 torr)

Dermal: 7.1E+2 mg/day (40% Liquid)

Releases to Water: 1.2E-1 kg/site-day over 50 days/yr

Or Incineration or Landfill

Releases via Incineration: 2.0E+1 kg/site-day over 50 days/yr

Fate Releases to Landfill: LADD: 1.25E-06 mg/kg/day

Fate Releases to Air:

Stack Air: LADD: 2.73E-04 mg/kg/day ADR: 2.57E-02 mg/kg/day

Fate Releases to Water (Removal Rate 84%):

SWC: 18.11 ppb

DW: LADD: 1.85E-06 mg/kg/day; ADR: 8.27E-04 mg/kg/day

FI: LADD: 1.00E-05 mg/kg/day, ADR: 3.94E-03 mg/kg/day

>COC (5 ppb) 4/13 release days

P2 Rec Comments:

**Testing:**

**Final Recommended:**

Health:

Eco:

Fate:

Other:

## SAT Report

PMN Number: L-13-0177

SAT Date: 3/1/2013

Print Date: 6/19/2015

### Related cases:

Health related cases:

Ecotox related cases:

### Concern levels:

Type of Concern:	<u>Health</u>	<u>Eco</u>	<u>Comments</u>
Level of Concern:	1-2	3	

<u>Persistence</u>	<u>Bioaccum</u>	<u>Toxicity</u>	<u>Comments</u>
2	2	1	
		Awaiting	
		Human Health	
		Entry	
		Awaiting	
		Human Health	
		Entry	
		Awaiting	
		Human Health	
		Entry	

### Exposure Based Review:

Health: No

Ecotox: No

### Routes of exposure:

Health: Dermal Drinking Water Inhalation

Ecotox: All releases to water

Fate: ;

### Keywords:

Keywords:

### Summary of Assessment:

#### Fate:

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### **Ecotox:**

Test Organism	Test Type	Test End Point	Predicted	Measured	Comments
fish	96-h	LC50	*		
daphnid	48-h	LC50	*		
green algal	96-h	EC50	*		
fish	—	chronic value	0.049		
daphnid	—	chronic value	0.06		
algal	—	chronic value	0.347 or *		
Sewage Sludge	3-h	EC50	—		
Sewage Sludge	—	Chronic Value	—		

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<b>Factors</b>	<b>Values</b>	<b>Comments</b>
Assessment Factor	10	
Concentration of Concern (ppb) Acute		
Concentration of Concern (ppb) Chronic	5	
SARs	Neutral Organics	
SAR Class	Neutral Organics	
TSCA New Chemical Category	Neutral Organics	

**Ecotox Factors Comments:**

**SAT Chair:** L Keifer 564-8916

**Fate assessor:** **Ecotox assessor:** **Health assessor:**